

XI. *Notes on the occurrence in Britain of some undescribed Aphides.* By G. B. BUCKTON, F.R.S.

[Read August 4th, 1886.]

PLATES IV., V., VI., & VII.

MUCH interest will always attach to any possible tracing back of a specific form to its natural and more simple groupings, and also to the enquiry what modifications of structure and habit have formerly been the factors in a development from the simple to the complex. For this reason alone, an undue multiplication of described species is to be deplored, for it must tend to complicate a problem which is already sufficiently difficult and obscure.

In forming a judgment as to the existence of a new species, much must be left to the intuition of the biologist, for, as a sailor may be able correctly to read the sky, and yet be unable satisfactorily to tell you why he comes to an opinion, so it may not be always easy for a man of science positively to state why he decides for or against a form as specific.

Since the publication of the fourth volume of the 'Monograph of British Aphides' friends have kindly sent to me what appear to be several new species, and I venture here to describe certain of them, although they might perhaps better appear in a short supplement to that work.

Aphis crithmi, Buckton.

Apterous viviparous female.—Size of body, 0·060 × 0·030 inch. Small, oval, brown, and slightly mealy to the naked eye. Neckring, cornicles, and two or more broad irregular patches on each side of the abdomen, dark olive-green or brown. Abdomen pilose and pitted near the carina. Eyes black. Antennæ greenish, and about two-fifths the length of the insect. Young individuals are often bright yellow or greenish, with numerous minute spots dotted over the surface. The pupa is of a drab-yellow colour, with black head, eyes, nectaries, knee, and tarsal joints. Wing-coverts yellow, tipped with black or brown.

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Winged viviparous female.—Expanse, 0·220 inch; body, 0·080 × 0·030 inch. General colour lemon-yellow. Head and antennæ black, eyes red, rostrum reaching to the third coxæ, thorax with a broad interrupted discoidal brown or black spot. A similar square spot occurs on the dorsum, between the cornicles, with two or more luteous dashes. There are also four carinal spots. Knees and tarsi dark brown. Cauda absent. Wings hyaline, with the usual twice-forked cubital vein. Insertions yellow, as also is the stigma.

Found on the stalks of the samphire, *Crithmum maritimum*, growing on the rocks at Kingsbridge, situated at the head of the Salcombe Estuary, Devonshire. Specimens were kindly forwarded to me in July by G. C. Bignell, Esq.

The aphid which most nearly agrees with this insect perhaps is *Aphis Angelice* of Koch. But, though his figure fairly answers to my drawing, the different food and the peculiar habitat on the sea-shore, amongst other considerations, preclude the identity of these two insects.

Lachnus pini, Linn.

I was unable, from the want of examples, to describe and figure the winged viviparous female of this species in the 'Monograph of British Aphides.' The apterous female is there noticed on page 50, vol. iii., and a drawing occurs on plate 97 of the same volume. Through the kindness of Mr. Bignell I can now describe the winged form, which is relatively much smaller than the apterous. The insects were taken on the spruce fir late in September, and near Stonehouse, Devon.

Winged viviparous female.—Expanse, 0·400 inch; size of body, 0·100 × 0·040 inch. General colour ochreous-yellow. Head black, neck-ring ochreous. Thoracic lobes dark brown. Abdomen corrugated and marked with a double row of dark dorsal spots. Cornicles papilliform and brown. Legs yellow, with brown femoral, tibial, and tarsal joints. Antennæ black. Wings with a yellowish membrane, ochreous insertions, and a broad brown stigma. Venation very fine, but the first cubital vein is coarser than the rest. The body is covered with a fine yellow coat of hair. The pupæ are also small, yellow, finely spotted, and furnished with dark brown wing-cases.

Thelaxes betulina.

I think Mr. Darwin remarks that some suspicion attaches to a genus which is represented by a single species. Unless the characters differentiated rise to a high significance in classification, hesitation must be involved in the creation of such a genus; due regard being paid to the difficult and obscure subject of variation.

The genus *Thelaxes* was constructed by Prof. Westwood in 1840, but some continental authors have ignored it in favour of the genus *Vacuna*, which has been thought to have priority. *Vacuna* was established by Van Heyden in his paper entitled, "Entomologische Beiträge," published in 1837 in the second volume of the 'Museum-Senkenbergianum,' pp. 289—291, and he there describes *Vacuna coccinea*, which is a true *Phylloxera*; as appears evident from a drawing of the wing, kindly made for me by Prof. Westwood; and taken from one of the type-specimens sent to him by Van Heyden himself. No notice seems to be published as to the character of the lower wing. Westwood says "the very minute species *Vacuna coccinea*, Heyd., has its wings very similar to those of *Phylloxera* of Fonscolombe, in which the cubital vein is unforked; whilst in *Thelaxes* of Westwood the cubital vein has a distinct furcation." Prof. Westwood moreover thinks that his *T. quercicola*, which has never been described, may possibly be identical, or at least congeneric, with *Aphis dryophylla*, Schr.; and he writes, "In this particular it agrees with *Thelaxes dryophylla* of the 'Mon. British Aphides.'" He quotes his former diagnosis:—"Wings flat on the back whilst at rest, anterior with three oblique discoidal nervures, the anterior bifid; antennæ short."—See 'Introd. Mod. Class. of Insects,' vol. ii., p. 441. From the foregoing it would appear that the natural position of *Thelaxes* is between *Glyphina* and *Pemphigus*.

I am indebted to the courtesy and observation of the Rev. E. N. Bloomfield for the opportunity of describing another species of *Thelaxes*. At first, the discoverer of this insect thought that it had some affinity with *Glyphina*. The insect inhabits the birches round Guestling, near Hastings, and it congregates in clusters, not so much on or under the leaves, as near the ends of the shoots. Towards the middle of June he found both the

apterous and winged female forms, and I received from him a consignment of about thirty individuals, some five or six of which had wings.

By the first week in July the winged viviparous females had almost disappeared, and considerable difficulty was found in obtaining an additional specimen on the 21st of that month, though the apterous insects were still fairly plentiful. They certainly also live to the middle of August.

I append a diagnosis of this new species:—

Thelaxes betulina, Buckton.

Apterous viviparous female.—Size of body, 0·050 × 0·035 inch. Variable both in colour and in size. The earlier broods have a general pale or olive-green colour, and are furnished with a delicate brown hairy coat. Head small; eyes pale; antennæ green, tipped with black, five-jointed, ending with a "nail," as in *Thelaxes dryophilla*. Legs short. Upper side sometimes of a lively green, whilst other examples show an olive tint, with four or more disjointed transverse bands, which, being interrupted down the dorsum, mark out a green stripe with adjacent white or green side-patches. Six or seven obscure pores occur down each side, just as we see in *T. dryophilla*. The nectaries are mamilliform. The young are wholly of a bright and delicate green. The later moults occur larger, more globose, and the green parts become dark to almost black. Pupa bright yellow, with brown head, wing-cases, and tarsi. The thorax and abdomen are sparsely dotted with brown.

Winged viviparous female.—Expanse, 0·240 inch; size of body, 0·060 × 0·040 inch. General colour dusky green, with dark brown patches on the thorax. Head, eyes, and antennæ dark brown or black. Cauda, nectaries, and several broad square spots down the dorsum accompanied by smaller lateral spots, of the same colour. Antennæ five-jointed, ending in a nail-like process; the third joint the longest and green. Abdomen slightly tuberculose. Rostrum reaches to the third coxæ. Wings delicate in texture, folded horizontally when at rest. Costa greenish, with a brown stigma. Venation distinct and dark brown. Cubital vein, which does not quite touch the cubitus, once forked. Hind wings with a single oblique vein rising from the cubital.

Wing-venation amongst the Aphides is a highly important character. Mr. F. Walker, in his *Cat. Homop.*, has, on p. 1052, vol. iv., a mere notice without descrip-

tion of a *Thelaxes betulæ*, but he makes this insect synonymous with *Vacuna betulæ*, Heyd. From what I have said before, the venation of this insect must differ from my *T. betulina*, and I do not adopt it as a synonym. Kaltenbach has *Vacuna betulæ*, and his description in many points agrees with the insect here shown to be at any rate new to Great Britain. But his insect has ringed antennæ, and, like others, he says his *Vacuna* is the *Vacuna* of Heyden.

Chermes taxi.

The genus *Chermes* is at present restricted to a very few described species, and of these two, viz., *Chermes abietis* and *C. strobilobius*, Kalt., have been observed to construct gall-like swellings on their food-plants. The last-named insect Kaltenbach describes as forming excrescences on the shoots of *Pinus abies* about the size of a hazel nut.

Prof. Rupert Jones has been good enough to send me some galls made on the Irish yew, *Taxus baccata*, the work of a *Chermes*, which certainly is not *C. strobilobius*, and this insect I propose to name—

Chermes taxi, Buckton.

Apterous viviparous female.—Size, 0.050 × 0.030 inch. Figure irregular, oval. Colour dark shining brown or black. Very small. Head much hidden in the thorax, black. Abdomen deeply ringed. Dorsal and lateral portions roughened by numerous squarish tubercles. Legs black, and not appearing beyond the carapace. The anal ring is expanded into a pale semilunar termination, from which is exerted a quantity of white flocculent filaments.

The galls occur on the terminal shoots, and are composed of from eight to sixteen pea-formed cells, united into brown bunches. When cut into they are found to be full of sap, and the walls to be constituted of alternate layers of bright green and pink woody matter. I could find no openings to these excrescences, but as they were gathered in the month of March it is very probable that the openings would not occur until later in the year, when the inhabitants were ready to assume wings, as we know to be the case in *Chermes abietis*.

I have not been able to capture any winged forms ;

indeed, they are always in this genus less plentiful than the apterous females, if we except the gall-making *Chermes* of the spruce-fir.

In the consignment made to me from a garden at Ealing, Middlesex, the insects were congregated on the stems below the attachments of the galls; and several were surrounded by their shining honey-coloured eggs. The produce of these eggs probably are the gall-makers, and these females become prolific within the juicy distortions they make on this conifer.

EXPLANATION OF PLATES IV., V., VI., & VII.

PLATE IV.—*Aphis crithmi*.

- FIG. 1. The apterous female.
 2. Pupa of the same.
 3. The winged imago.
 4. Antenna of the same.
 5. Sheath and three setæ of the rostrum.
 6. Tarsus and claws.

PLATE V.—*Lachnus pini*.

1. Apterous viviparous female, with exerted proboscis.
 2. The pupa.
 3. Winged viviparous female.

PLATE VI.—*Thclaxes betulina*.

1. Apterous viviparous female.
 2. The same, but of a later brood.
 3. The pupa.
 4. The imago.
 5. Part of the head, showing the eye with its supplemental lenses, and the antenna.
 6. Tarsal joint.

PLATE VII.—*Chermes taxi*.

1. *Coccus*-like larvæ, showing the anal end, from which the flocculent substance is extruded.
 2. Another specimen, with her eggs, a cast skin, and the silky attachment.
 3. A sprig of yew, with five bunches of cells or pseudo-galls, fabricated by the above insects.